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Forecast 2011

SPECIAL REPORT

As IT leaders look ahead to 2011, they're figuring out how to cope with **tight budgets,** the advent of **cloud computing** and an influx of **consumer technologies.**

ALSO INSIDE

- HP Gets 3Par Amid Hurd Mess
- iPads Creep Into the Office
- The Dangers of Public Wi-Fi

Like many of his CIO peers, **James Quinn** will approve only projects with rapid-fire ROI next year.

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FOTOLIA / NYUL

WIRELESS SECURITY

Help Employees Avoid Hot-Spot Hazards

EMPLOYEES ARE EXPOSING personal and professional information unknowingly as they log onto public Wi-Fi hot spots at hotels, airports and coffee shops, experts say.

Ryan Crum, former director of information security at PricewaterhouseCoopers Advisory Services, said he has observed unprotected Social Security numbers, corporate financial data and information about mergers and acquisitions circulating on public Wi-Fi networks, particularly in e-mails.

Security experts recommend that IT managers take the following steps to protect corporate data from hot-spot dangers:

- Establish and enforce strong authentication policies for devices trying to access corporate networks.
- Require employees to use a corporate VPN and encryption when making connections and exchanging data. Better still, set up computers and other mobile devices so that they automatically connect to the VPN and encrypt data — after it has been determined that the device hasn't been lost or stolen.
- Make sure all devices and software applications are configured properly and have the latest patches.
- Ensure that corporate security policies prohibit people from transferring sensitive data to mobile devices or unauthorized computers.
- Provide workers with broadband air cards, which require a service plan, so employees don't have to use public hot spots for wireless connections.

– Mary K. Pratt, contributing writer

RESEARCH RECAP

Report Warns Of Windows 7 Labor Shortfall

It's not a Y2K-style crisis, but there's only a four-year window until Microsoft Corp. ends support for Windows XP. The need to migrate from XP to Windows 7 "will create an extra budgetary and resource burden on companies from 2011 to 2012," according to recent report by Gartner Inc.

The research firm estimates that large and midsize organizations worldwide will migrate about 250 million PCs to Windows 7 over the next few years.

Gartner predicted that demand for IT staffers qualified to handle Windows 7 migrations will exceed the supply during that time frame, leading to higher IT labor costs.

Gartner analyst Steve Kleynhans said IT shops should line up Windows 7 contractors early.

"Begin talks with suppliers now about putting in place contracts that can deliver flexible levels of resources at a fixed rate," he advised.

The report said IT shops have three migration options: accelerate the replacement of desktop PCs with Windows 7 machines, upgrade the operating systems on existing machines, or move some workers to hosted virtual desktops.

"Most organizations will need to find extra funds or redirect budgets away from other projects to complete the Windows migration on time," the Gartner report concluded.

– MITCH BETTS

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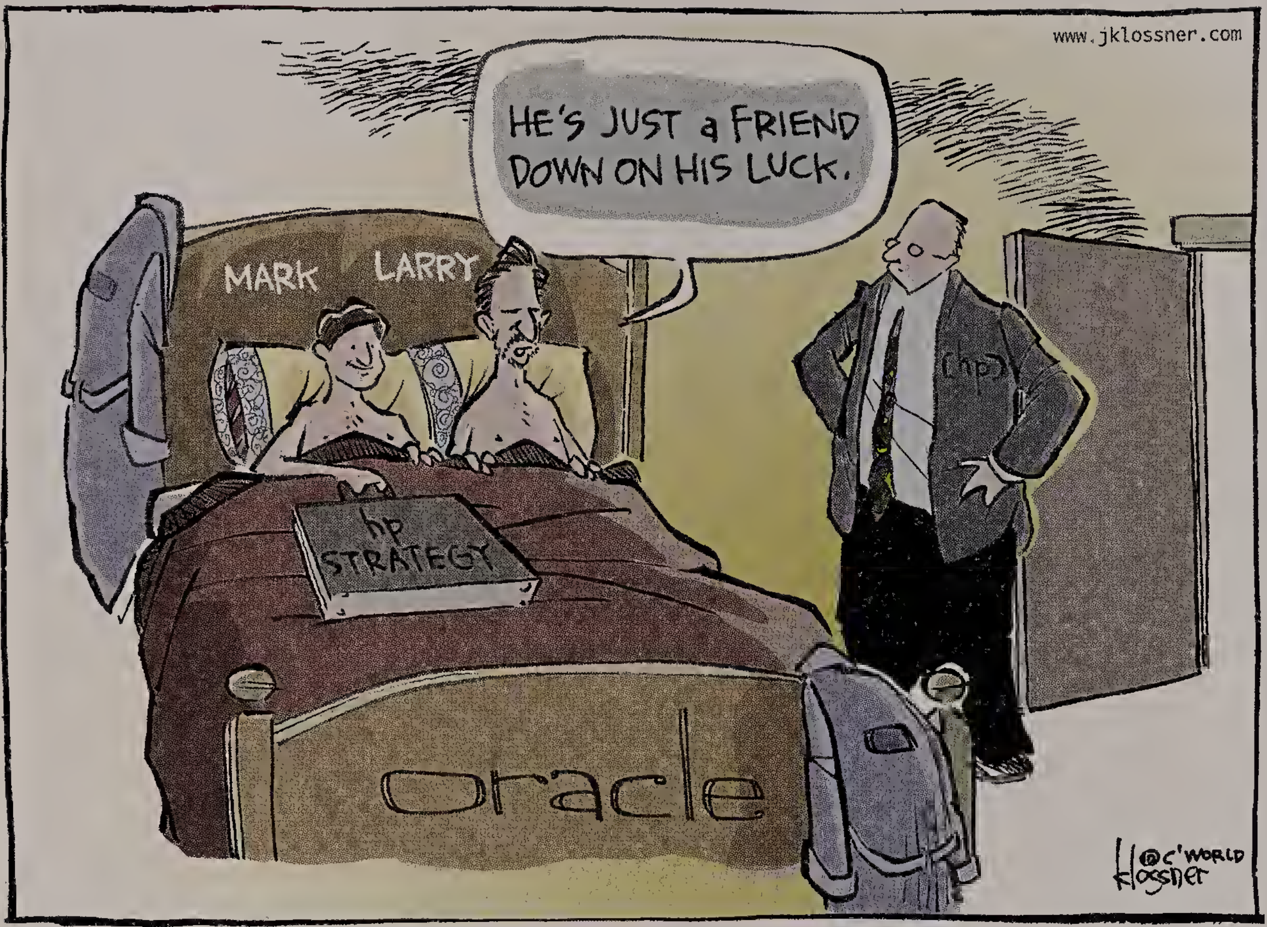
BETWEEN THE LINES

By John Klossner



DATA CENTERS

Purdue App Slows Chips to Reduce Heat

CHIP MAKERS continue to build increasingly powerful processors, but one customer has found it useful to slow the chips down when the data center's cooling system falters.

Patrick Finnegan, a systems administrator at Purdue University, has developed software that throttles the clock speed of server processors to reduce the heat they produce.

"Previously, our only options were to put in a few large fans and hope that was enough, or start turning servers off," said Mike Shuey, who oversees Purdue's supercomputers. "This software gives us a middle ground that gets us by many outages."

The Purdue data center runs about 15,000 processors, mostly for two supercomputer clusters. Slowing down the chips "may lose 70% to 80% performance, but we get a 30% power savings," Shuey said.

Normally, commodity servers automatically shut down when they're on the verge of overheating, or administrators turn them off before they reach that point. But in the world of academic supercomputing, such restarts are a big problem.

Purdue's clusters run many serial jobs that can take days, weeks or even months to complete. And while some programs have frequent setpoints to which they can return, many do not. "If our only recourse to survive an outage is to start turning off machines, we can throw away 2 [million] to 3 million CPU hours of work," Shuey said. "It can take weeks and weeks of runtime just to get back to the state we were in the minute before we turned things off."

In contrast, by throttling back the servers, the programs are slowed, but no work is lost.

Since Finnegan wrote the software earlier this year, the school has used it twice. "The compute jobs slowed down, but the data center temperatures dropped," Shuey said.

Purdue is selling the software for $250 at FolioDirect.net, an IT market for universities.

– Joab Jackson, IDG News Service

Micro Burst

SPAM KING

Rustock, the biggest spam-sending botnet, was responsible for

41%

of all spam messages sent worldwide last month.

SOURCE: SYMANTEC CORP.'S MESSAGELABS INTELLIGENCE REPORT, AUGUST 2010

FUTURE WATCH

RFID Signals Travel Farther In Air Ducts

Researchers have discovered that ventilation ducts at least triple the distance that radio waves from passive RFID tags can travel inside a building.

The discovery could lead to a new breed of building sensors that use RFID tags to wirelessly transmit data to central monitoring systems without the expense of running wires throughout a building, according to a statement by North Carolina State University.

The wireless sensors could replace today's climate-control systems that use wired thermostats. In addition, the development opens the door to RFID-based smoke detectors, carbon monoxide monitors, or sensors that detect chemical, biological or radiological agents, according to Dan Stancil, head of the university's Department of Electrical and Computer Engineering.

Stancil's research team found that air ducts act as electromagnetic waveguides that boost the communication range of UHF (ultrahigh frequency) radio frequency identification tags. The tags emitted a radio signal that could be picked up by an RFID reader at the opposite end of a 30-meter piece of ductwork; the typical range of an RFID signal over open space is 5 to 10 meters.

– MATT HAMBLEN

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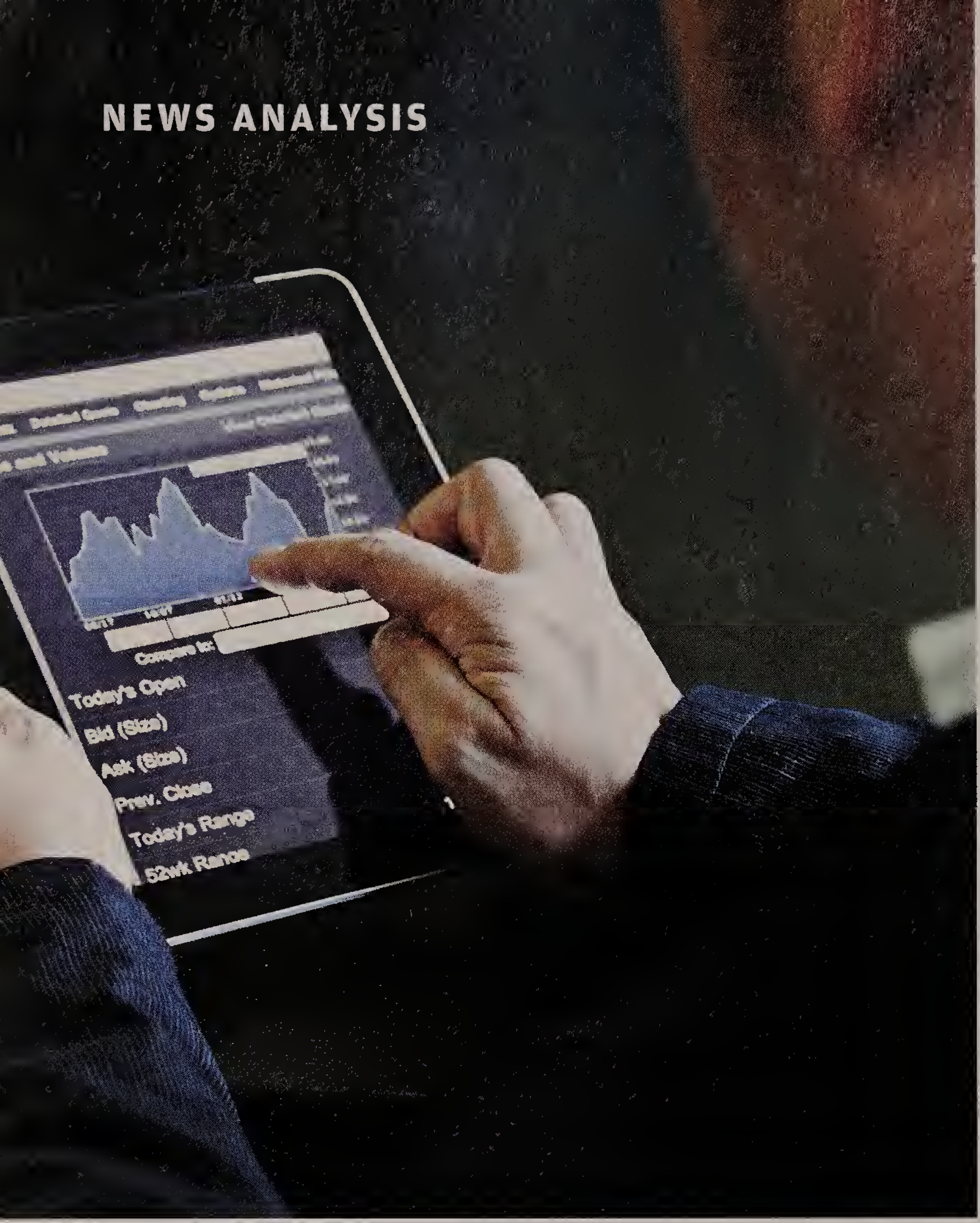

> “Until we get access to **corporate applications**, employees will still have to lug around their laptops.
>
> **TED SCHADLER,** ANALYST, FORRESTER RESEARCH INC.

iPad Creeping Into Business Offices

Analysts say the popular Apple tablet needs more business apps, but early adopters are finding ways to use it at work. **By Matt Hamblen**

APPLE INC.'S iPad tablet computer, hugely popular among consumers since its April debut, is slowly finding its way into the hands of doctors, lawyers and other businesspeople who say it can help them do their jobs.

For example, the IT shop at Sonnenschein Nath & Rosenthal LLP gave the Chicago-based law firm's attorneys permission to use iPads — as long as they're willing to pay for the devices themselves. About 100 of the 800 attorneys are using them.

“The iPad has real value for attorneys servicing our clients, of being able to access corporate data and document libraries immediately and [doing so] a lot quicker than on a laptop,” said Michael Barnas, the firm's director of application services.

IT managers have approved the iPad's security and management functions, and the firm is providing limited support to road warriors who have problems logging in, authenticating or using Citrix Receiver middleware on the device. But Barnas added that IT personnel can't yet provide full remote iPad support.

Attorneys with iPads still use laptops as well, because they need to write long documents that are subject to many revisions — a nearly impossible task on Apple's tablet today, Barnas added.

At Dartmouth-Hitchcock Medical Center in Lebanon, N.H., cardiologist Jon Wahrenberger said he and four colleagues use iPads to access electronic health records and to take notes while examining patients. He said the device's “low profile” makes it less intimidating to patients during exams than a laptop might be.

Wahrenberger said the medical center recently installed a Microsoft Exchange server that includes extensions to the iPad. “There's huge excitement for this stuff,” he said.

Still, the iPad needs to add far more business-friendly capabilities before it can become a corporate staple, contended Ted Schadler, an analyst at Forrester Research Inc.

Most important, he said, is the need for applications that can be used to create and edit common documents across multiple computer platforms. “Until we get access to corporate applications, employees will still have to lug around their laptops,” Schadler said.

He did note that the iPad has the “same security model and administrative model as [the one Apple built into] the iPhone, so they've done due diligence on that already.”

Schadler also cited three practical uses of the iPad for businesses today.

First, he said, salespeople can use the device to scroll through slides or demonstrate a Web site; second, executives on short trips can use it to access e-mail, calendars or Keynote slides; and finally, doctors, retail sales staffers, warehouse workers and others can use iPad devices to access to applications while on their feet. ◆

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[1] Based on 3-party benchmark result SPEC CPU2006 comparing previous generation system with Intel Xeon 5470 (Harpertown) 3.33GHz processors to new generation System x3690 X5 with Intel Xeon X7560 processors. [2] Return on investment and power savings calculation based on 33:1 consolidation ratio scenario of 200 Intel 2-socket servers to 6 IBM x3690 X5 servers and savings in energy costs, software license fees and other operating costs. Actual costs and savings will vary depending on individual customer configurations and environment. [3] Based on one IBM x3690 X5 with MAX5 memory expansion (2 processors, 64 DIMMs) as compared to an industry-standard 2-processor, 16 DIMM system and license cost per processor. [4] Prices are current as of 8-31-10 and are subject to change without notice. Manufacturer's suggested retail price; dealer prices may vary. Minimum transaction size $5,000; monthly payments are estimates based on lease rates for installations of qualified products and services in the United States. Actual rates may vary based on your creditworthiness, configuration details, etc., and are subject to credit approval by IBM Credit LLC. For some clients, total software and services is limited to 75% of hardware financed. Other conditions may apply, so please contact your IBM Authorized Business Partner or IBM representative for more information. IBM, the IBM logo, ibm.com, Smarter Planet and the planet icon are trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the Web at www.ibm.com/legal/copytrade.shtml Intel, the Intel logo, Xeon and Xeon Inside are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries. © International Business Machines Corporation 2010

3Par CEO David Scott is "sitting there smiling," now that HP plans to buy his company for $2.4 billion, says one analyst.

HP Gets 3Par Amid Hurd Mess

Analysts expect 3Par's grid storage technology to become a key part of the HP Enterprise Services product portfolio. By Lucas Mearian

HEWLETT-PACKARD CO. didn't allow the chaos surrounding the unseemly Aug. 6 departure of former CEO Mark Hurd blunt its pursuit of grid storage maker 3Par Inc.

After winning a weeks-long bidding war with Dell Inc. early this month, HP walked away with the Fremont, Calif.-based storage vendor for about $2.4 billion in cash. HP had thrice topped bids from Dell, whose final offer was $2 billion.

Analyst John Bender, who once ran HP's mergers and acquisitions group and oversaw the massive 2002 HP-Compaq merger, called the move to buy 3Par a good one for his former employer.

The deal lets HP control its storage technology — it currently resells high-end arrays from Hitachi Data Systems Corp. — while strategically keeping 3Par's well-regarded offerings out of the hands of rivals like Dell and Acer Inc., said Bender, who's now managing director of Bender Consulting.

And just as important, he added, HP needed a win after the contentious departure of Hurd, who resigned about a month ago in the face of a sexual harassment claim that led to the disclosure of some inaccurate expense reports. (Hurd was hired last week as co-president of Oracle Corp., and HP immediately filed a lawsuit charging that its former CEO had violated his severance agreement.)

Bender expects HP's Enterprise Services unit, formerly EDS, to aggressively sell 3Par products.

"There will be a strong link to EDS. Whether it's just from a professional services perspective to set it up for customers or a fully embedded business unit, time will tell," he said.

The big winner of the bidding war is 3Par, according to Arun Taneja, a consultant at Taneja Group, who said 3Par's CEO, David Scott, "is sitting there smiling, as is his staff and shareholders."

As for Dell, acquiring 3Par would have been a critical part of its plan to become a provider of a full line of data center products and services, according to analysts. The addition of 3Par's technology would have allowed Dell Services to add strong cloud offerings to its product catalog, they said.

However, "Dell has a major problem right now," Bender contended. "They have to consider whether or not they should take the money they would have spent on 3Par and develop those capabilities internally." ◆

Computerworld reporter **Patrick Thibodeau** *contributed to this story.*

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THE Grill

John Burke

In the volatile energy market, in-house development helps this CIO control his firm's destiny.

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Good to Great, by Jim Collins

WHEN AMBIT ENERGY *launched in 2006, CIO and co-founder John Burke was faced with the task of supporting the IT needs of a start-up that had aggressive growth plans in an extremely competitive deregulated energy market. But instead of turning to software vendors and outside consultants to help build out Ambit's IT infrastructure, Burke decided to do everything in-house. It's an approach that he says has helped Ambit's 55-person IT organization more efficiently enable and support the company's frenetic growth. At a time when many companies are outsourcing IT operations to cut costs, Burke insists that keeping Ambit's IT entirely in-house has yielded far better ROI.*

What does Ambit do as a player in the deregulated energy market? Ambit is an energy provider largely to residential customers. We really own and manage the customer. We sell the customer, and they enroll through our systems. We then receive meter reads through

Continued on page 14

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Continued from page 12

the regulated transmission distribution providers every month through EDI and other electronic means. We then rate it, generate a bill, print it, mail it out, and then we expect the customer to pay. If the customer doesn't pay on time, there are oversight committees in the states we operate in that govern [when] you can go in and turn the electricity off. So, in a worst-case scenario, we accidentally turn off someone's power or we bill them incorrectly, and it can become a very spicy issue. So we've had to focus a lot of energy upfront on making sure that our systems are really rock-solid so that those sorts of issues don't happen.

What drove your decision to do all of your software development in-house? We started the company in 2006, and I was intending on just going out and licensing a system. I had no interest in building one. [But] there weren't really a lot of players in the deregulated energy space. I finally settled on one. My first request was for a simple rating methodology, and the vendor told me it would take two weeks to define it and two months to build. And I just about had a heart attack. So I grabbed two contractors, and we started writing software. We wrote the rating engine first, then designed the data models. Because of the lessons I learned from my previous experience in telecom, I put a hard regimen in place from the beginning about how we develop and design. We measure twice and cut once.

Now that it's all built out, wouldn't it be easier to have someone else manage it? Our systems are better than anything we can buy, period. If you go look in the industry at what we are doing relative to what other people are doing, no one has got what we have. As a matter of fact, we've had companies come to us asking us to license our [back-office system]. So we consider it a competitive advantage. I don't know anyone out there that even comes close to what we can do for rate of return.

You moved from a waterfall software development methodology to one based on agile processes. Why? With the waterfall methodology, what we would do is write these really robust specs initially and then work with the business to refine them. Then we would go and write software for a couple of months. And when you got to the end, the business owners would look at what's coming out of the door and say, “Wait a minute. Since the last time we talked, we really rethought some of this, and now we want you to do this instead of that.” It creates this animosity where IT blames business because they didn't know all the specs upfront, and the business blames IT because the meeting wasn't organized well, etc. If you are lucky, you have a visionary genius who defines everything upfront, and then you are safe.

So, how does it work with agile? With agile, we are using scrum, where you do these sprints, which are these one-to-two-week runs. At the beginning, the business prioritizes what they want to see. Then you do a sprint, and everyone looks at it after two weeks. During that time, the business may reprioritize what they want. They may come up with new definitions. But all the work that was completed during that time is value-add toward the end [product]. There is a psychological impact when the business is empowered and more involved in the development process and they are giving real feedback. And then there's the same psychological process with the IT guys. They feel they have a closer connection with the business. They are able to show them things quicker and give the business more immediate feedback.

What would your advice be to companies that want to implement agile but don't have the advantage you did of being at a start-up? I was lucky. I have the ability to actually implement great ideas, and that is a real blessing. I've had previous roles where I've gone in as a virtual CIO at organizations and tried to change them, and it is incredibly hard to do.

I don't think you should look at it at a textbook level, however. You should take a moment to try to change your thinking. It was a change for me. I like doing what works, and I had a lot of success with waterfall. So I had to really open my mind and listen. You have to live in the unknown for a while and get your head around what these guys are talking about. And, of course, as with any situation, don't listen to the marketing. Don't swallow the buzzwords. Try to look at what the underlying principles are. You may not be able to adopt all aspects of it because of the organization, but you are going to have some control over some aspects.

– *Interview by* **Jaikumar Vijayan**

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FOCUS
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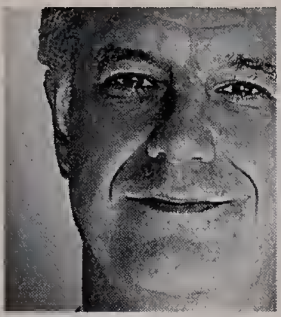
OPINION



BART PERKINS

Social Media to the Rescue

> Social media offers organizations like the Red Cross a cheaper, easier means of responding to an emergency.

SOCIAL NETWORKS such as Facebook and Twitter link people around the globe. But until recently, they have been oriented toward leisure activities such as connecting with friends and playing games. Now, social media tools are beginning to support serious endeavors, including crisis response efforts by FEMA, the DHS, and police and fire departments.

In 2008, Egyptian police detained a UC Berkeley graduate student, James Buck, for photographing a protest near Cairo. Buck tweeted "Arrested." His followers notified Berkeley, which obtained his release through the U.S. State Department and local attorneys. In 2009, two young Australian girls trapped in a storm sewer used their phones to update their Facebook status. Friends notified authorities, who rescued the girls. More organized uses of social media during emergencies are in the offing. The American Red Cross recently hosted the Emergency Social Data Summit to discuss capitalizing on social media during emergencies.

Crisis responders are attracted to social media because they are:

Pervasive. Facebook has over 500 million subscribers worldwide, with 1 billion projected by 2013.

Inexpensive. It is nearly always more cost-effective (and quicker) to build systems on an existing platform. Social media apps are relatively easy to develop, allowing relief organizations to spend their time and money meeting victims' needs rather than building complex IT infrastructures.

Flexible. Social media platforms were designed to facilitate customization and extension. This allows an app to be repurposed for multiple disasters. The Ushahidi application, developed to track violence in Kenya, was adapted to track volunteers, supplies and shelters following the Haiti earthquake and was also modified for use in the response to the BP oil spill. The Red Cross' "Safe and Well" survivor registration Web site, which was designed to help reconnect friends and families after Hurricane Katrina, was recently updated to include a direct feed to Facebook and Twitter. In addition, people away from their homes during a disaster can visit the American Red Cross Flickr site to see disaster photos and determine whether their neighborhoods sustained damage.

Crisis responders are beginning to augment official information channels with up-to-the-minute data from social media. But privacy concerns abound. In a crisis, reconnecting family members is critically important. But the same data needed for that could potentially be used for harmful purposes, such as robbery or identity theft. Moreover, emergency responders need access to potentially sensitive personal data of the sort that social media services have been criticized for sharing. This raises the question of whether crisis responders should be able to override privacy controls within various social networks.

Finally, emergency responders often obtain information from phone-call-based services such as 9-1-1 emergency systems. A recent Red Cross survey found that people who weren't able to reach emergency operators quickly by dialing 9-1-1 often turned to e-mail or social networks. Unfortunately, few 9-1-1 call centers can accept data from social media; valuable text messages, photos or videos can't be forwarded to responders. That's not good, especially in an emergency.

Social media platforms are maturing and becoming serious communication channels that facilitate problem-solving in creative and unexpected ways at commercial, governmental and not-for-profit organizations. How can your company use them to achieve its goals? ◆

Bart Perkins is managing partner at Louisville, Ky.-based Leverage Partners Inc., which helps organizations invest well in IT. Contact him at BartPerkins@LeveragePartners.com.

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SPECIAL REPORT

Forecast 2011

Learn to stay nimble in the year ahead with tips on **budgeting, cloud computing, hiring** and more

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IT's Leaner Lifestyle

Meticulous **budgeting and economizing** technologies have helped sculpt **trim new IT outfits.** Here's how IT will maintain its **slimmer shape** in 2011.

BY JULIA KING

L**IKE MANY BUDGET-CONSTRAINED** IT executives, PHI Inc. CIO James Quinn will be heading into 2011 with a list of worthy projects that the global helicopter transportation company will nonetheless be deferring — at least for the time being. But there are certain kinds of projects you won't find on that hold list.

Key among them are projects that are "customer-facing or anything that saves dollars," says Quinn. "Anything that involves process improvements and anything that can show a fairly fast ROI is also getting pushed to the front."

On the expense side, PHI will continue to reduce costs by outsourcing "keep the lights on" operations, even farming out the maintenance of production databases. The company is also renegotiating its agreements with just about all of its IT and services

RICK OLIVIER

» PHI CIO James Quinn says projects that are customer-facing or can save money will get a green light in 2011.

> **We're looking for internal efficiencies, but we also have to look at how to make our customers more efficient.**
>
> **RICK GREENWOOD,** CIO,
> RURAL COMMUNITY INSURANCE SERVICES

providers, including those whose contracts haven't yet expired.

"We're being very aggressive, going back to vendors to work multiyear deals in exchange for cost reductions today," Quinn explains. "We're seeing our customers do that to us, and we're doing the same thing with our vendors."

IT shops in all industries are approaching 2011 the same way Quinn is: They plan to vigilantly manage flat budgets and further slash already significantly reduced costs. Indeed, IT executives who responded to *Computerworld's* 2011 Forecast survey ranked budget constraints and economic pressures as their No. 1 challenge in the year ahead. And six out of 10 respondents indicated that even though the economy appears to be improving, the cuts they made in the past 18 months or so will become permanent (see charts, page 23).

Even more notable is that the projects IT executives say rank highest on their 2011 priority lists are those designed to cut costs even more. Most of those projects fall into three broad categories: revamping and then automating various business processes; consolidating data centers and implementing technologies that help save money, such as virtualization and cloud services; and outsourcing or using software-as-a-service providers for routine tasks. The idea is that by automating and outsourcing the work that just keeps the lights on, IT departments can focus their valuable staff resources on innovative projects designed to grow the business.

But don't expect a big run-up in IT job openings. For the most part, CIOs don't expect to invest in additional full-time staff next year. Rather, the focus is on investing in new technologies that will automate operations and lower costs — and decrease the need for additional employees. The technologies that survey respondents said they are piloting or beta-testing are server virtualization, desktop virtualization, and mobile and wireless devices.

"Even in this downturn, we're seeing a significant investment in technology," says Adam Noble, CIO at GAF Materials Corp. So are his CIO peers, he says. "They're not hiring, but their investments are going up."

Energy company Southern Co.'s generation business is contemplating virtualizing all of its servers and desktops, says CIO Marie Mouchet. "It's an option we're considering systemwide. We have application virtualization and desktop virtualization pilots under way. We have had a lease program for our desktops, which we rotate every few years. As they expire, we'll be evaluating moving to virtual desktops," she says.

As for new IT jobs, "we are not looking to hire additional people to meet needs," Mouchet says. Instead, the company plans to upsize and downsize using contractors.

But there are also organizations where investments in both technology and staff are at a standstill. Among them is the Tennessee Technology Center at Shelbyville, one of 27 such centers across the state that along with six universities and 44 community colleges make up Tennessee's higher education system.

"One of the biggest problems is that there isn't revenue flowing into the state, and one of the first places they look to cut is educa-

Continued on page 22

Stimulus Money, With Strings

BOB MARTIN, CIO of Wisconsin's Department of Health Services, has plenty of money to hire direly needed IT staffers, thanks to federal funds that the state received under the 2009 American Recovery and Reinvestment Act (ARRA), also known as the stimulus program. What's thwarting him is the web of red tape and strings attached to the dollars.

One of the biggest problems is the excruciating administrative process associated with hiring in the public sector. "Hiring a contractor is a two-to-three-month effort," says Martin, who worked in the private sector for 25 years before moving to state government eight years ago. "It takes three to four times longer to do anything because of all the scrutiny and politics."

The other major hurdle involves the rules and regulations governing who can and can't be hired using stimulus money, because the act set rules restricting the types of projects that can be funded. The federal dollars must be spent on very specific programs, serving very specific constituencies. For example, Martin says the state can spend ARRA money on technology and IT staffers associated with health programs that cover children from birth to age 3.

"That's a subset of a larger statewide health plan, and you can only spend it in proportion to the number of cases," he explains. The upshot is "we have a big pot of dollars but can only spend a portion of it," he says. He still needs to find a way to pay for the people and systems related to the much larger portion of health programs – more than 95% – that are left unfunded. "It is very frustrating," Martin says. "We could get a lot more done with 15 people, but we can only pay for eight people with the [stimulus] money."

Meanwhile, Steve Mallard, IT director at the Tennessee Technology Center at Shelbyville, has a different kind of ARRA-related problem. "In 2011, when ARRA funding goes away, we're looking at 10% to 20% in cuts," he says.

Mallard says the center did receive stimulus money, which it used primarily to buy computer hardware. The funds also cover maintenance for a period of 18 months. "But after that, we lose that money, and we still have to maintain the equipment," he says. "It's like giving you a new car, but they don't give you the [long-term] maintenance on it."

– JULIA KING

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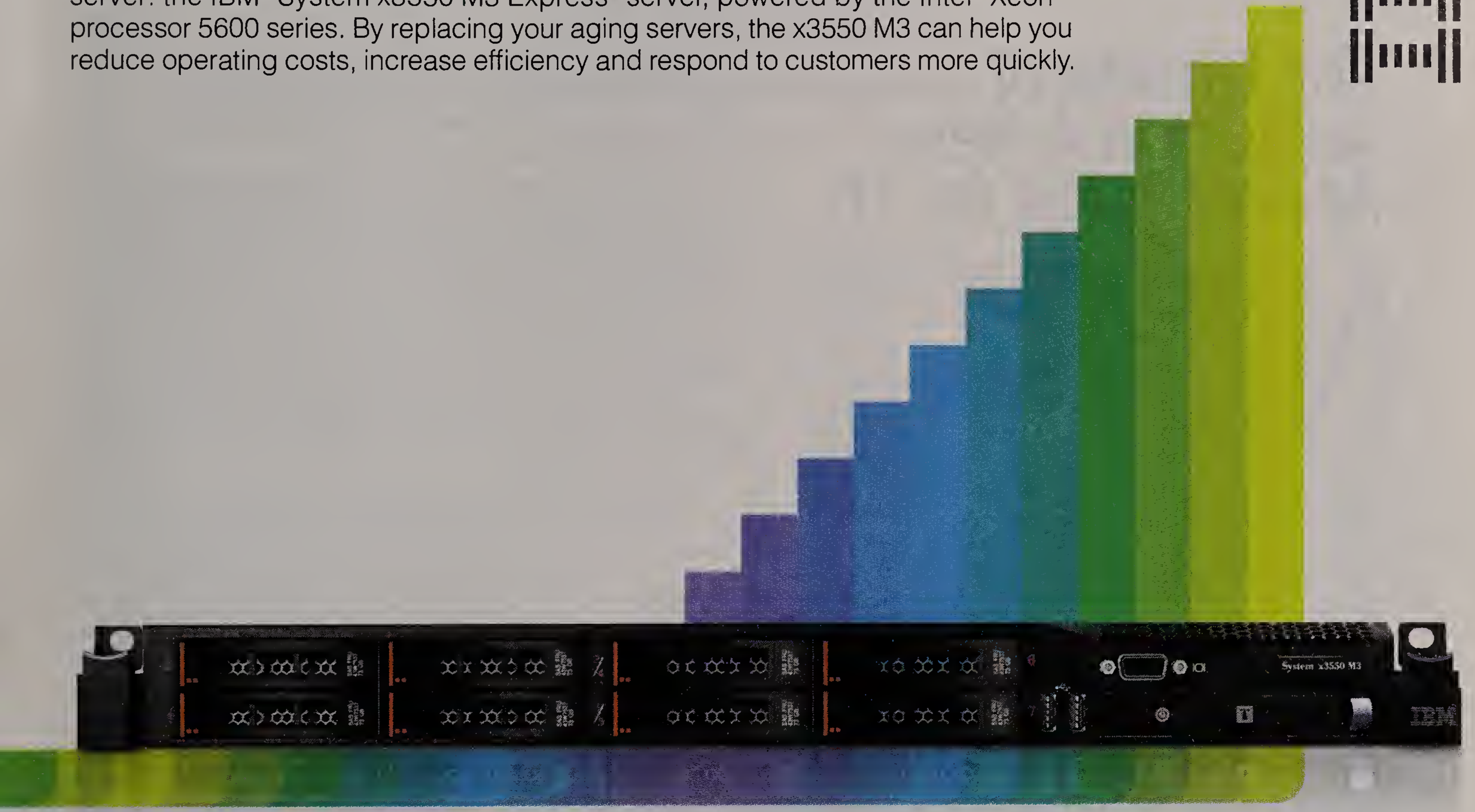

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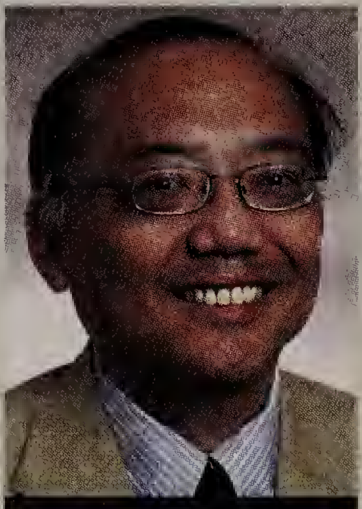
The Upside of Austerity: A New Appreciation for IT

NEXT YEAR'S TECHNOLOGY BUDGETS are mostly flat, and cutting costs remains a top priority, but it's not all gloom and doom for IT.

Consider the case of Daniel Chan, CIO at the New York State Office of Temporary and Disability Assistance. His most experienced staffers are retiring at an alarming rate and taking years of institutional knowledge with them. In an effort to mitigate those losses, the agency is re-engineering and automating as many of its processes as possible; it's also using dashboards to better monitor expenditures and manage approval processes in a timely manner. Nonetheless, it's still looking to fill 50 jobs in the next few months.

"Our strategy is to bring in new talent from the outside, with the hope that they will look at things differently as to how we can improve our processes," says Chan. He adds that the move to automation has yielded a big unexpected benefit: "IT is a lot more joined at the hip with really high-level executive management within the government because they're seeing more and more the value that technology can bring to the table."

Other CIOs tell similar stories.



CIO Daniel Chan

At GAF Materials, CIO Adam Noble says IT received a slight budget increase for 2011, thanks in large part to the ROI generated by investments in new IT systems during the previous two years, most notably a unified communications system for the customer service call center. The system enables customers to place orders via the Internet instead of doing so over the phone. GAF has since launched a pilot to see if chat can be incorporated into the process.

Phone orders now represent the smallest percentage of overall orders. "It has completely flipped from two years ago, when 80% of our orders were taken by phone," Noble says. "We still have customer service people, but now we can use those people for other things, like up-selling." The call center has also reduced costs by 10%. After presenting those results to the company's board, Noble says, "we talked about where IT can make additional investments, and we got a slight uptick of 5% in the budget."

At PHI, top management is now calling on CIO James Quinn to help research and negotiate business matters far outside the realm of hardware, software and services.

"I just met with our CEO, and we were looking at a technology company in the roofing industry that has nothing to do with standard IT," Quinn says. "Because I'm heavily involved in negotiations and I understand how technology can impact the business, I was called in." As he sees it, "IT is almost becoming an extension of the R&D organization. Everyone talks about innovation and they look at my organization."

IT is also in charge of a companywide cost reduction program at PHI. "The initiative is being run by IT, which was chosen to lead it because of our project management experience," Quinn says.

Going forward, "I think IT will continue to be a front-runner in helping companies survive," he says. "What's going on [in the economy] is actually elevating the importance of IT. There's a huge opportunity for IT to come to the forefront of a company and show its worth."

– JULIA KING

Continued from page 20

tion. We're doing without 20% of the IT budget we had last year, and last year we had 10% less than the year before," says Steve Mallard, the center's IT director. He says he's looking for any and all ways to keep costs down, including using more open-source software, bringing on student interns to work in IT, recycling hardware, and building 40% of the computers and virtually all of the servers in use at the center.

Push-button Processes

At the Wisconsin Department of Health Services, automating the state's vital-records systems is the top project queued up for 2011. By making birth, marriage, death and divorce certificates and other documents available electronically, the state hopes to both cut costs and improve services to citizens, says CIO Bob Martin. The project comes on the heels of a recently completed $4 million statewide data center consolidation project.

But completing the vital-records project — as well as the dozens of smaller "cleanup" projects Martin has in the works for 2011 — will be difficult, since the agency doesn't plan to fill the 10% to 15% of IT positions vacated through attrition in the past year or so (see story on page 20).

Making matters even worse is that statewide, about 35% of government employees, including many in IT, are eligible to retire in the next three to five years.

"It's a tough balancing act because at the same time that we're being asked to automate more and more — which makes perfectly good sense — there is a shifting and shuffling of roles and responsibilities among existing staff," Martin says.

"We can't fill those positions, and they may be taken away for good as part of a statewide budget fix," he adds.

Anoka, Minn.-based Rural Community Insurance Services, which provides crop insurance to the agricultural industry, is looking to revamp and streamline how customers interact with the company online. "Our customers have to do a lot of work and provide a lot of information, but we can actually prepopulate much of that information with data we already have from other agencies," explains CIO Rick Greenwood. By prepopulating crop data and codes and other information into applications, "we can complete 70% of information that customers would otherwise have to key in. After that, all they have to do is validate the information and provide a digital signature, which is a big efficiency," he notes. "We're looking for internal efficiencies, but we also have to look at how to make our customers more efficient."

> **Even in this downturn, we're seeing a significant investment in technology.**
>
> **ADAM NOBLE,** CIO, GAF MATERIALS CORP.

Similarly, Jeffrey Pattison, CIO at Inttra Inc., a Parsippany, N.J., company that provides e-commerce systems to the ocean freight industry, says, "We're trying to keep service levels up and keep costs as low as possible." One way to do that is to build more rules-based technology into customer-facing systems, which can then be customized by individual users to streamline their own operations.

"If we can run and grow more efficiently, we can free up more dollars to do R&D and innovative work," Pattison says.

In the New York State Office of Temporary and Disability Assistance, CIO Daniel Chan's biggest project for 2011 is called Functional Roadmap. The initiative involves working with an outside consulting firm to review just about all of the organization's business processes and then re-engineer them, automating wherever possible.

"Right now, we have 27 different programs that our clients may be eligible for, and each program is administered very differently. We're looking to consolidate to one or two processes from 27 different ways of doing things," Chan says. "Ten [percent] to 20% improvement is not acceptable. We're looking for multipliers of five or 10."

Running for Cloud Cover

Chan is also looking outside of his IT organization for solutions. "I think we spend entirely too much time tinkering with hardware," he says. "Over time, we can outsource most of our IT infrastructure. Instead of buying and building and managing servers, potentially we could engage a cloud provider and rent capacity. We are experimenting in-house with cloud, but there are still a lot of security-related concerns."

Haggen Inc., a 32-store chain of supermarkets in the Pacific Northwest, has already extensively consolidated its data center operations by virtualizing servers. "Now we're looking at storage rationalization and optimization," says CIO Harrison Lewis. "Before, we might just acquire more storage, but now we're looking at Tier 2 and Tier 3 data and moving it off to a private cloud."

A recent internal study showed that 49% of data that Haggen had been storing hadn't been accessed in two years. This has prompted a more rigorous review of all IT assets, with an eye toward distinguishing exactly what offers a competitive advantage and should be kept in-house and what should be outsourced.

"If it's not an area where we need to do a great deal of customization, software-as-a-service makes sense," Lewis says. In 2011, Haggen will be evaluating other SaaS options, including Google's suite of productivity applications. "From everything I've seen so far, it can make sense for us," notes Lewis.

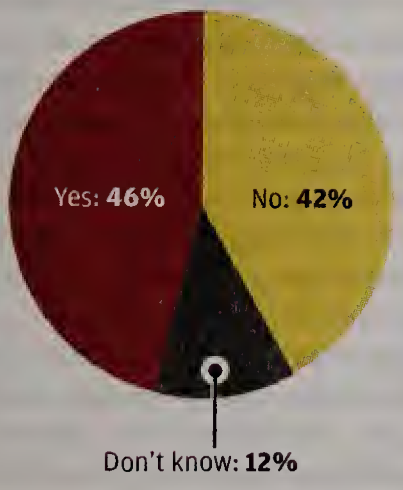
The bottom line, says Forrester Research analyst Bobby Cameron, is that companies will focus on continuing to drive down costs throughout 2011.

"As the IT organization focuses more on process, they're also consolidating IT, moving to shared services, and there is a huge acceleration in their ability to automate services," he says. "The whole concept of preprovisioned environments — with cloud and virtualization — takes automation to the nth degree.

"All of these accelerants are going to continue to drive down the cost of delivering IT," adds Cameron, not only in 2011, but for the foreseeable future. ◆

SPENDING SLOWDOWN

Is your organization planning any major upgrades or purchases in the next 12 months?



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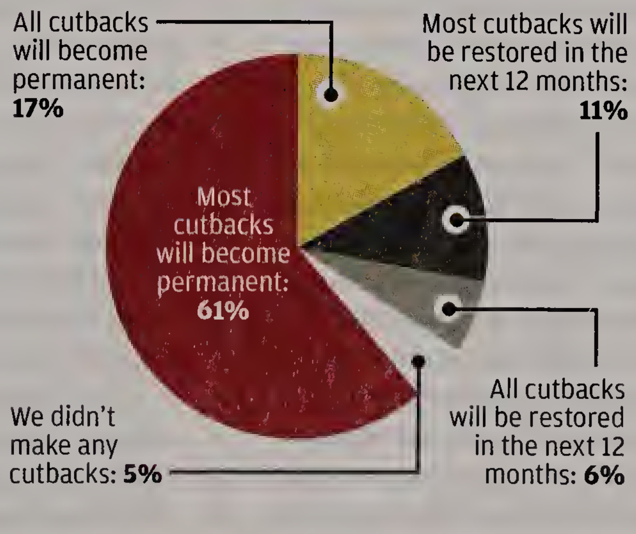

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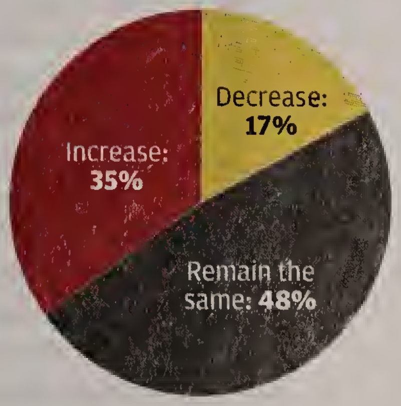

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High-Pressure Clouds

IT leaders are being urged to use **cloud computing** to lower costs in the data center. But is **speed** the real payoff?

BY ROBERT L. MITCHELL

IN THE TIME IT TAKES to get a cup of coffee, any one of the hundreds of engineers and developers at mobile computing chip-maker Qualcomm Inc. can provision himself a new server — one that's fully configured with compute, storage, networking, middleware and other resources. "You can get something provisioned within 15 minutes," says Matthew Clark, senior director of IT.

The San Diego-based company's self-service infrastructure, dubbed "AutoZone," includes all the hallmarks of a private cloud: a self-service portal with a menu of standardized services that users can choose; a virtualized infrastructure built using standardized suites of hardware and software; fully automated provisioning and deprovisioning; and the ability for IT to meter and allocate costs from the division level down to the individual department, application or user.

But don't ask Clark to call it a private cloud.

"We're getting close to a cloud, but I would call our implementation a cross-platform, automated virtualized environment," he says. His reticence is understandable because, as he points out, everyone seems to have a different definition of cloud computing. Clark's is very simple, if broad: "Cloud is efficient use of resources across your infrastructure, which can also be external services."

James Staten, an analyst at Forrester Research Inc., says Qualcomm is on the leading edge. No matter how Clark defines cloud computing, Staten says, "Qualcomm is a lot further along than most companies are."

Clark's peers are watching with great interest. Private clouds are rapidly becoming a priority for corporate IT heading into 2011. The core elements — on-premises virtualization, standardized infrastructure and service offerings, and automated provisioning — can deliver cost efficiencies and reduce administrative overhead. But the biggest driver by far is time to market, IT executives say. "We look at the benefit as quicker time to onboard applications, not cost savings. It's all about speed of deployment," says Norm Fjeldheim, Qualcomm's CIO.

There's another motivating factor at work as well, says Staten: potential competition from public cloud offerings, which IT's customers are increasingly using instead of in-house systems. "There's this fear that the public cloud will make IT irrelevant," Staten says, and many IT organizations are feeling pressure to have an internal "cloud answer" for the business side as soon as possible.

With all of the hype about cloud, it's important to keep in mind that, unlike some public cloud services that promise instant gratification, private cloud is an infrastructure play that represents a long-term payback. "It's not something you drop in today and immediately see a 50% return on investment," says Mitch Daniels, technical director at integrator ManTech International Corp. "The expectations-setting really needs to be addressed upfront, especially with management."

Defining Your Cloud

Fjeldheim defines cloud as "a complete abstraction of the hardware away from the applications that run on them." What Qualcomm has done isn't a cloud, he says, because it has virtualized classes of hardware, creating virtual infrastructure silos for Windows, Linux and Solaris environments. "We can't run an application on any piece of hardware we have," he says.

Also, Qualcomm's virtual infrastructure can't yet scale to support application workloads dynamically — something Fjeldheim sees as a key attribute of an internal, private cloud. "We don't have the ability for the virtual infrastructure to automatically provide additional infrastructure to an application that needs it, and then take it away when it doesn't," he says.

In addition to the core attributes of virtualization, standardization and automation, there's another important element in a private cloud architecture: multitenancy. Cloud-based services must be shared across all of the organization's departments and business units in order to pay off. "The economies only work when it's shared," says Staten. And that means business users must be willing to accept a limited set of standardized service offerings — and fewer customizations.

In other cases, the goal is to have not just the virtualized infrastructure, but everything up through the application layer become a set of standardized, shared services that all aspects of the business will share — something that Fjeldheim says his company is doing now for developers and engineers. Finally, says Staten, a private cloud should include the ability to track service usage and charge users for the consumption of cloud-based services.

Qualcomm isn't the only company experimenting with cloud. Many IT shops are starting pilots using one of these options: software-based architectures, such as the open-source OpenStack promoted by RackSpace, NASA and Eucalyptus Systems; or more proprietary, "cloud in a box" setups that tightly couple the software and hardware, such as IBM's CloudBurst or Hewlett-Packard's BladeSystem Matrix "converged infrastructure."

Cloud-in-a-box products typically include a self-service portal, a cost allocation engine and all of the automation requirements for a defined menu of configurations, from the application, underlying databases and other middleware to virtual infrastructure and associated resources that will be assigned. These products enforce a degree of standardization right out of the gate and are a good way to get your feet wet, says Staten.

Rather than choosing one approach, Qualcomm has gone down both roads. "We went with a mixture of OpenStack and cloud-in-a-box solutions," says Clark. On

Continued on page 28

We look at the benefit as quicker time to onboard applications, not cost savings. It's all about speed of deployment.

NORM FJELDHEIM, CIO, QUALCOMM INC.

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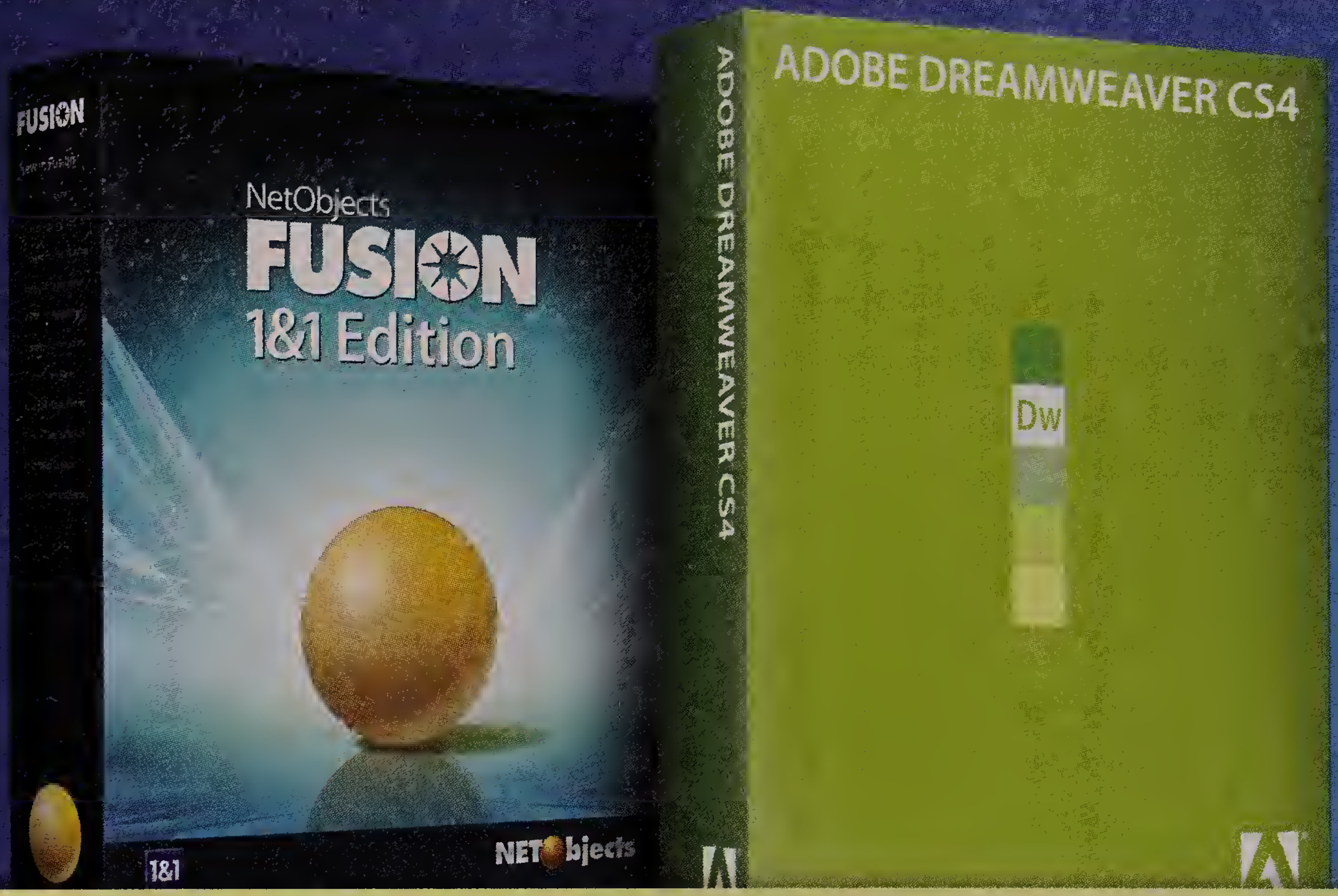

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Continued from page 25

the open end, Qualcomm uses Eucalyptus as its back end, along with VMware, Computer Associates' Automation Point tools, and products from rPath. The company is also working under nondisclosure with a vendor that's developing a cloud-in-a-box system.

Roswell Park Cancer Institute in Buffalo, N.Y., went for a boxed solution, deploying HP's BladeSystem Matrix in June in an effort to automate provisioning. The 11-blade chassis, which is still being configured, will eventually support 100 existing virtual servers, while another 100 new virtual servers will be built from a standardized set of templates, says Tom Vaughan, director of IT infrastructure. He sees continued work to conform with ITIL standards for IT service and change management, and the development of a standard service catalog, as key to a successful rollout, since cloud automation must be built upon a set of standardized processes.

Going Public: The Hybrid Cloud

Private clouds aren't necessarily hosted on-premises. There are hosted private cloud services from third-party providers that manage dedicated cloud infrastructures for their customers at off-site locations. An advantage of such arrangements is that the service providers can offer "cloud bursting" — the rapid addition of compute capacity from the public, multitenant cloud to handle temporary periods of heavy loads. But IT executives remain cautious about such setups because they have concerns about security and control; they're also leery of service-level agreements that seem better suited to small businesses.

"Security is a big, big deal for us. And not just security, but the perception of it," says Fjeldheim.

Wake Technical Community College in Raleigh, N.C., built a different kind of hybrid. The school is part of a consortium that developed a hosted private cloud that serves as a virtual computer lab (VCL) for students. The VMware-based system, built on IBM BladeServers by the Microelectronics Center at North Carolina State University, automatically provisions a virtual machine when a student logs in. Each image lasts for up to eight hours before it's automatically deprovisioned.

The VCL system eliminated to the need to open a new 50-seat lab, saving $50,000. But CIO Darryl McGraw says the school did run into one issue with a private cloud hosted by a third party. The fall semester starts earlier at Wake Technical College than at North Carolina State, and just as classes started at the former, administrators for the VCL took down the servers for maintenance. "The concept of multiple tenants on the same hardware can be problematic," McGraw says. He has also limited the cloud to student labs, as opposed to, say, the ERP system. "The worst that can happen is that someone gets their homework hacked into," he says. Overall, however, he considers the VCL to be a success, and he plans to push 137 physical computer labs into the VCL cloud over the next five years.

Using commercially hosted private clouds also presents contractual challenges. The CIO at one Fortune 500 company, who is currently negotiating with a major cloud service provider, says it's not always clear who's responsible when things don't work — or how the problem will be resolved. Providers expect to be able to change terms and conditions in contracts at a moment's notice, he complains. And he says that the service-level agreements he's seen are totally inadequate. "They want to limit their liability so greatly that — why bother?" he asks, adding, "If I offered those types of SLAs to the business, I'd be out of a job." The CIO, who asked not to be named because he's still in discussions with the vendor, says that in many cases, such contracts simply aren't designed for enterprise-class, mission-critical applications. The negotiations with vendors so far, he says, have been "burdensome."

HOT AND COLD

Cloud computing was ranked as the No. 1 **most overhyped** technology but was also named the No. 2 technology with the **most promise** for 2011.

Technology most important to your organization in the next 12 months:

1. Virtualization
2. Cloud computing

SOURCE: COMPUTERWORLD'S EXCLUSIVE FORECAST SURVEY OF 209 IT PROFESSIONALS, JUNE-JULY 2010

Key attributes of a private cloud:

- Virtualization
- Highly standardized infrastructure
- Automated provisioning
- User self-service
- Catalog of services
- Usage-based cost accounting and chargeback
- Dynamic resource scaling as application loads change

SOURCE: IT EXECUTIVE INTERVIEWS

The Caveats

But the need for rigid standardization of processes, services and infrastructure that underlie the cloud may be the biggest nut to crack in the year ahead. Problems come when IT — or its customers — begin customizing the standardized catalog of services because they don't like the predefined choices.

"For a private cloud to work, the IT shop has to deliver highly repeatable, consistent services with minimal or no customization," says Nick Van der Zweep, director of business strategy for industry standard servers and software at HP. For example, HP offers just three configuration templates for hosting an Oracle RAC database in the cloud: small,

Continued on page 30

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Continued from page 28

midsize and large. To host Exchange in the cloud, the administrator can choose only the number of users.

Straying from the path can lead down a slippery slope, since without a finite, standardized services catalog, the benefits of the system are greatly reduced. "All these things I change turn off the 'cloudiness' of it," Staten says. The only way to succeed, he argues, is to make it more costly for users to go outside of the standard offerings. Users who follow the rules get a system in 15 minutes and a neatly packaged services-based chargeback model. Those who need a custom configuration must wait longer — and pay more. But he doesn't think the chargeback model will fly in many organizations, and he contends that this is what will hold up broader adoption of internal clouds. "We're confident that 95% of IT shops aren't ready for that," says Staten.

> **You get into this ugly business-process re-engineering that has to go on. You say you have to do it this way, and then you have a rift with the user community.**
>
> **MITCH DANIELS,** TECHNICAL DIRECTOR, MANTECH CORP.

Fjeldheim sees IT process standardization as a key to success. "We have a very standardized way of doing things, good automation and process control," he says, adding that the company recently earned the ISO 20000 IT service management and ISO 27000 IT security management systems certifications. But that doesn't necessarily mean you have to create different processes or tool sets for managing cloud and managing traditional infrastructures.

To Daniels at integrator ManTech, the key is to identify services that can be reused across the organization — and stick with them. The problem, he says, is that each user organization wants things done slightly differently.

"You get into this ugly business-process re-engineering that has to go on. You say you have to do it this way, and then you have a rift with the user community," he explains. Those who have gone down this route with service-oriented architectures will have a leg up with internal clouds, he contends. Others, he says, may not appreciate the investment they'll have to make upfront to take full advantage of a private cloud architecture. "You've got to do your homework on the application side."

John Fiore, CIO at Bank of New York Mellon, worries about vendor lock-in with cloud-in-a-box offerings as he ponders choices for a pilot project. "There really aren't any standards at this stage of the game. If you go down a certain path, that's yet another new architecture you're accepting — and what might be the life span of it?" He says he likes the idea of cloud-in-a-box offerings that bundle hardware and software into one neat package but adds, "We'd prefer not to have a tight coupling between the two. Until they evolve to a point where a loose coupling is achievable, there are definitely some business risks here."

Starting Slowly

As with early virtualization deployments, most private cloud pilots focus on relatively safe, internal IT functions, such as testing and development. Bank of New York Mellon, for example, plans to focus early cloud-automation efforts in the development and quality assurance areas. Wake Technical focused on student labs, where student homework is the only thing at risk.

At Roswell, Vaughan says his first test will be to allow the IT staff to automatically provision virtual machines for testing purposes, before moving on to the server team and application developers. "Instead of going through the paperwork of requesting that a server be built, they will be able do it themselves," he says. And as the center rolls out virtual desktop technology to its Citrix clients next year, Vaughan says the back-end servers will move into the cloud. "I'd like to push out as many services to people as we can," he adds.

That's the plan at Bank of New York Mellon as well. Fiore says the bank plans to aggressively explore hosting an internal cloud but will start in the development and testing area, where "a lot of firms are cutting their teeth." Like Fjeldheim, he says the goal is faster deployments. "Time to market is the thing our customers are demanding. Things like [the Troubled Asset Relief Program] require us to act quickly and with great agility," says Fiore.

Broader cloud deployments beyond testing and development are still at least three years off, Staten says. But a private cloud ultimately has the potential to take over large tracts of the data center, especially for Linux- and Windows-based applications with variable workload demands, such as in the areas of high-performance computing, and collaborative or Internet-based applications. Less suitable are workloads that are very stable, where the equipment is fully depreciated and where there are no requirements to upgrade in the near future.

Qualcomm is unlikely to migrate its ERP system to the cloud, because its resource needs are highly predictable. The benefit of the cloud lies in its ability to scale in an automated fashion, Clark says, "but with ERP, we know when we have to scale and we can scale it."

Nonetheless, more and more workloads are evolving in that direction. "Our portfolio of applications is gradually moving toward the commodity [servers]. As that happens, the appropriateness of cloud rises," says Pete Johnson, chief technology officer at Bank of New York Mellon. McGraw says the initial costs of setting up a private cloud at the college were high, but in the long term, "it's worth it." Vaughan is also bullish on the long-term role of a private cloud architecture. Some functions may never fit into a cloud architecture, but eventually, he says, "I think it will pretty much take over the data center." ◆

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- **Distribution Market Advantage**, Schaumburg, Illinois
- **Kaiser Permanente Southern California**, Anaheim, California
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- **Life Technologies Corporation**, Carlsbad, California
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Did you miss this year's call for nominations?
Our 2011 program opens on September 20, 2010. Visit www.biperspectives.com for details.

The Ultimate Multitaskers

[redacted]

Help desks are now **juggling support** for the iPad, Windows 7 and a host of smartphones – **and they're watching for what's next.** BY MARY BRANDEL

THE WEEK BEFORE the 2010-11 school year began at Indiana University, Sue Workman, associate vice president for communication and support, was preparing for the onslaught — not just returning students, but their wireless devices, too. Workman expects an average of two Wi-Fi-enabled devices per student, be they smartphones, tablets, netbooks, laptops, gaming systems, e-readers, MP3 players "and who knows what else," she says. Thanks to a proliferation of devices with built-in Wi-Fi, Workman believes wireless growth will be exponential this year.

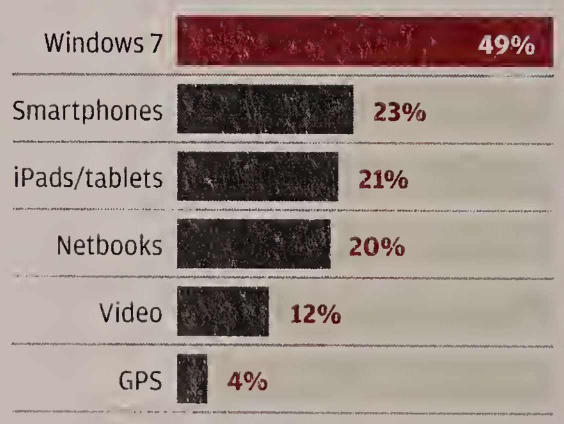
The explosion has caused big changes for IT at Indiana University, and there will be even more in the next year. "We've had to do some realignment to prioritize the technologies we want to support and then make sure we have the right resources allocated to them," she says. Last year, Workman's group saw an ever-increasing variety of netbooks and smartphones, including many more Apple iPhones, and university-developed iPhone applications. This year, IT is gearing up to support Windows 7 devices, Android applications, Microsoft Office 2010 Web Apps and new teaching models for Apple's iPad.

As IT shops across all industries begin allowing a wider variety of consumer technologies (see chart below), they must determine how their help desks will support all of those devices. Changes include more training (of both IT and business employees), increased staffing, self-help systems, social networking support forums, reorganized support organizations and tiered support strategies.

The challenge is heightened by the speed of innovation at the consumer level, where new products are likely to arrive every six to eight months, compared with every 12 to 18 months for corporate technology, says

MORE BALLS IN THE AIR

The technologies and devices that IT shops are supporting now that they weren't supporting last year:



SOURCE: *COMPUTERWORLD'S* EXCLUSIVE FORECAST SURVEY, 209 IT PROFESSIONALS, JUNE/JULY 2010

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Dan Quigley, vice president of IT at Aflac Inc.

Another factor is the variation among consumer devices that run the same operating system, says John Kresslein, CIO at the National Rural Electric Cooperative Association (NRECA). For example, while some Android smartphones can connect to Exchange through ActiveSync, others require third-party software, while still others don't enforce automated security rules such as password policies, he says.

Changes Ahead

An onslaught of new issues is forcing IT managers like Workman to reorganize their IT organizations to free up resources to support new computing models. In the coming year, she intends to start using desktop virtualization technology in an effort to manage PCs with fewer resources, and she's forging relationships with IT teams across the university to build a unified community that can leverage each group's expertise and resources.

At Texas Health Resources, the IT shop has had to change its approach to support, not just because users are continually bringing in the latest consumer devices, but specifically because physicians want to run electronic health records (EHR) systems on those devices. In the past 18 months, Texas Health changed its BlackBerry-only policy and now supports Windows and Android devices and iPhones as well. "We've seen a huge increase in demand among physicians for iPhone support," says CIO Ed Marx, and that means IT has to figure out how to handle connectivity, privacy, access and security for those devices.

With the advent of EHRs, Marx also expects to begin supporting more iPads and other tablet computers — including models that run Windows, and Hewlett-Packard's forthcoming tablet. "There's a huge desire to move away from laptops on carts," he says.

To absorb the extra support requirements, Marx cross-trained support staffers, streamlined service desk processes using ITIL-type methodologies and implemented some automated processes. He also plans to increase staffing by 15% next year. Perhaps most important, when the organization's mobile strategy is being discussed, IT leaders are now involved in the talks to ensure that the department can provide support. "The service desk is becoming more and more strategic," Marx says.

At Booz Allen Hamilton Inc., interactive self-help and social networking forums have noticeably reduced the number of how-to calls to the help desk. That's a good thing, considering the number and variety of mobile systems the consulting firm now supports, thanks to its focus on giving employees the freedom to work from different locations. "We have devices to fit the preferred working style of most people," says CIO Frank Smith.

The past year has seen emerging roles for tablets, PDAs, netbooks and laptops, as well as a blending of PBXs, computers and cell phones to keep employees in closer contact, he says. Booz Allen also uses find-me/follow-me communications services, in addition to other location-independent services, such as Avaya Inc.'s Extension to Cellular, which transfers calls from office phones to mobile phones without interruption.

Next year, employees will likely increase their use of interpersonal videoconferencing systems, as well as the iPad and other tablets, especially those like Cisco's Cius, which integrates with the existing security infrastructure, says Smith. "A lot of this is evolving, but there's demand for a lightweight e-mail/Web browser tool, and I believe we'll see more applications for these devices at the enterprise level," he says.

For the support group, this has meant more training, more staff and "a deepening of competence in multiple disciplines through experience, exposure and trying to not roll out anything without knowing how we'll support it," Smith says. It has also meant a lot of employee education in the form of brown-bag lunch meetings, briefings, newsletters and webinars, aided by social networking forums where discussions can be continued.

> **We've had quite a year with these new technologies – dealing with expectations of users and allowing their secure use without compromising their functionality and flashiness.**
>
> **DAN QUIGLEY,** VICE PRESIDENT OF IT, AFLAC INC.

The bottom line is, keeping up with employee demand — and addressing the security and support implications of all the new devices — takes a lot of time. NRECA's Kresslein can attest to that. In the coming year, he plans to research antivirus software for smartphones and find the most secure way to deploy e-book readers.

So far, his group has looked at the iPad, which relies on Internet downloads, and the BeBook Neo, which uses supplemental memory. The latter "wouldn't touch the network, so the only security concern is the types of documents people are storing on the device," Kresslein says. He also devised a way for employees to safely use Skype, by connecting via a netbook that operates outside the corporate network.

Issues like this — multiplied — are influencing Kresslein to take measures such as limiting the Android devices IT supports to those that work well with ActiveSync. "We've had to prioritize more of our projects," he says. "Smartphones have taken more of a lead lately because consumers want them, but they take more time to make sure they're secure." ◆

Brandel *is a* Computerworld *contributing writer. Contact her at marybrandel@verizon.net.*

11 Hot Skills for 2011

IT hiring will pick up slightly next year, and **talented programmers and project managers** will be at the starting line.

BY STACY COLLETT

CHRISTMAS CAME IN MIDSUMMER for Nicole Thompson, IS director of applications at HealthAlliance of the Hudson Valley.

Thanks to a federal mandate to implement electronic health records (EHR) systems, she has the funds in her 2011 budget to hire 11 new employees for projects ranging from database analysis and design to wireless device implementation.

"I'm bringing people on staff now who have extreme database experience," says Thompson, who works at the health care network's Benedictine Hospital campus in New York. She also needs someone with systems analysis and design experience, as well as someone who can communicate with clinicians about their workflow and then adapt a vendor's software to fit the hospital's needs. "It's a very exciting time," she adds. "This is the first time in my entire IT career where I have been able to hire people. I'm loving this!"

After months of staff cuts or hiring freezes, many U.S. companies are planning to hire IT employees with highly valued skills. The percentage of respondents to *Computerworld*'s annual Forecast survey who said they plan to increase staff size in the next 12 months increased slightly, from 20% in last year's survey to 23% this year.

"We're talking about hiring. It's happening now," says Dave Willmer, executive director of IT staffing services firm Robert Half Technol-

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Continued from page 34

ogy and a *Computerworld.com* columnist. “Companies that cut staff or implemented hiring freezes are realizing they need employees now to help upgrade IT systems and prepare for potential growth.”

What’s more, IT managers are taking the opportunity to mold their departments into profit-making business units.

Computerworld’s survey uncovered these 11 must-have skills.

1. Programming and Application Development

About 47% of the survey respondents who said they plan to hire IT professionals in the next year will be looking for people with programming or application development skills. Moreover, Monster.com reports that three quarters of 245 HR managers and recruiters it surveyed in May plan to hire IT staffers with applications expertise by the end of this year.

“Those skills are separate from enterprise business applications,” says David Foote, CEO and chief research officer at Foote Partners LLC in Vero Beach, Fla. In this volatile market, companies need to quickly reposition, as well as use IT to grow the business through new products and innovation. So “RAD, rapid programming and agile programming seem to be coming back. Companies are starting to increase some of their pay [in these areas], which means they’re looking for more capabilities in their companies,” he says.

2. Project Management

Kathleen Kay has put project managers at the top of her 2011 hiring list at Comerica Bank. With some 140 IT projects on the schedule, she will need people to oversee Web and mobile initiatives, a treasury management product rollout and a legacy applications refresh, among other efforts.

The Dearborn, Mich.-based bank will fill those needs by hiring new people and retraining existing employees. “We are very passionate about investing in our people and making sure they stay up to speed on skills with emerging technologies,” says Kay, senior vice president of business technology services.

People with project management skills will be sought by 43% of *Computerworld*’s survey respondents who plan to make new hires, and by more than half of those polled by Monster.com.

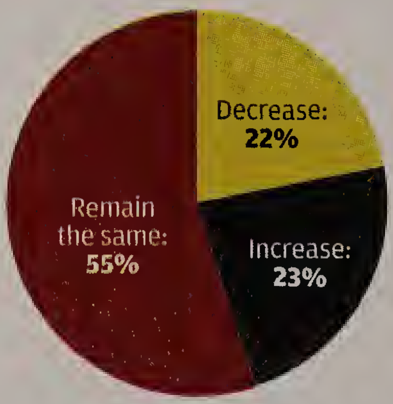
3. Help Desk/Technical Support

Only 20% of Microsoft customers had converted to Windows 7 as of July 2010, according to Microsoft. “That leaves 80%. They have to move over. It’s not a matter of choice,” Willmer says. That may be one reason why help desk and technical support skills will be high-priority in 2011 for 42% of survey-takers who are hiring.

What’s more, major conversions like those in the health care arena, driven by the EHR mandate, require a lot of help desk support for users. “These aren’t just people doing password resets. They’re probably technically savvy as well as having that health care background,” Willmer adds.

POCKETS OF HIRING

What changes do you expect in your IT employee head count in the next 12 months?



SOURCE: EXCLUSIVE *COMPUTERWORLD* SURVEY OF 209 IT PROFESSIONALS, JUNE/JULY 2010

4. Networking

Networking skills are in demand among 38% of *Computerworld* survey respondents who said they’re hiring. And those jobs were identified as the most challenging to fill in a Robert Half Technology survey of 1,400 CIOs. “Networking is closely tied to virtualization,” says Willmer. “Finding somebody with that virtualization experience and the ability to convert nonvirtual environments into virtual environments probably is the biggest reason” some networking skills are hard to find.

5. Security

“Security is the only area of certified IT skills that has never had a negative quarter throughout this entire recession,” Foote says. “We’ve never had a three-month period with a loss or decline in premiums for these people.” Demand is being driven by regulatory compliance needs and by customer demand for tools with built-in security features.

Valuable security skills include expertise in identity and access management, threat and vulnerability assessment, encryption, data loss prevention, incident analysis, governance, compliance and auditing, biometrics, Web content filtering, safeguards for voice-over-IP systems and e-discovery support for litigation.

6. Data Center

Of the *Computerworld* survey respondents who will be hiring in the next year, some 21% said that data center skills, including storage experience, will be in top demand.

“Storage is becoming more important as we go to network-attached storage [and storage-area networks],” says Suzanne Gordon, CIO at SAS Institute Inc. in Cary, N.C. Finding people with expertise in particular storage areas is important, she says, “but they should also be able to step back and look at it strategically: Are we putting the right things in the right places, and spending the right amount of money for safety and backup of the different types of data?”

7. Web 2.0

IT workers with next-generation Web skills will also be sought-after in 2011, according to 17% of *Computerworld*’s respondents who plan to add new staffers in the next year. Hot Web 2.0 skills include expertise in Adobe Flex, JavaScript, Adobe Flash, AJAX and JavaScript Object Notation. In the financial services industry, for example, “Web and mobile products are huge,” says Comerica’s Kay. “We have several projects ongoing that are geared around proving further Web and mobile functionality.”

8. Telecommunications

At Palmetto Health in Columbia, S.C., Michelle Edwards wants to hire staff with skills in unified communications. The health care provider is seeking people who can design an infrastructure and integrate various communications tools, including instant messaging, IP phones and remote access. "In a hospital, you have urgent needs for patient care, on-call needs and remote needs. We want to make sure we understand all those needs," as well as the security issues around those communications devices, says Edwards, senior vice president and CIO.

Some 16% of *Computerworld's* survey-takers who plan to hire will be looking for telecommunications skills into 2011.

9. Business Intelligence

As data proliferates and IT departments look for ways to contribute to the company's profitability, business intelligence skills will be highly sought-after in 2011, according to 13% of survey respondents.

Palmetto Health is using an EHR system and staffers have been "very good about putting information in, but we haven't done as well taking that data and making it usable," Edwards says. "We're being forced to do a better job with presenting the information that we're capturing" and sharing it through statewide health information exchange networks, she adds.

10. Collaboration Architecture

Collaboration architecture expertise is high on Campbell Soup Co.'s list of hot skills, says Donna Braunschweig, senior director of IT, enterprise portfolio and strategy. The company constantly looks at "how we can help the end-user experience be better by understanding how things like portals, Web and audio can integrate, and what does that need to look like to be able to have better collaboration across the company?" she says. While most of Campbell's collaboration tools are hosted offerings from service providers, Braunschweig says she still needs employees who can manage those vendors and understand the technology.

11. Business Acumen and Communication Skills

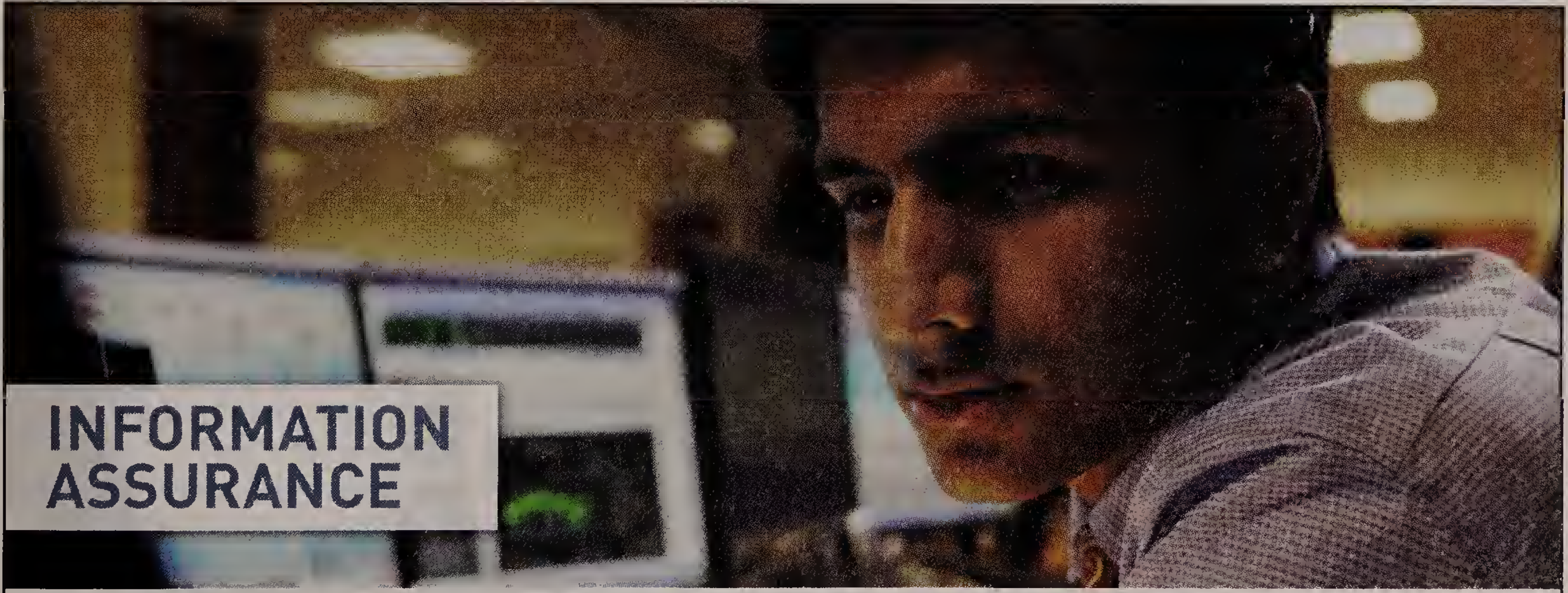
You won't find this in any IT job titles, but most companies in 2011 will seek IT employees who understand the business and can communicate technical concepts to business units and customers.

Campbell requires IT employees to have four types of competencies: business and financial acumen, functional depth, leadership skills and a global mind-set. "Sometimes people think of IT as just technical skills, and it's not," Braunschweig says.

At HealthAlliance, Thompson recruits IT staffers who can communicate well both orally and in writing. "I also want to have a reference of someone who knows how you speak about IT issues to people who are not computer-savvy," she adds.

Overall, the outlook for 2011 remains volatile, and IT groups will need workers whose skills can help them adapt to rapidly changing market conditions. But as IT units move from a support role to a profitability model, "now they are able to move more quickly," Foote says. "I don't think the [IT] world is ever going to return to what it was in 2008, but it's a very positive thing." ◆

Collett *is a* Computerworld *contributing writer. You can contact her at stcollett@aol.com.*



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THORNTON A. MAY

Your Marching Orders for Decade 2, Millennium 3

THE FIRST DECADE of the 21st century is drawing to a close. It started with the frenzy that was Y2K and concludes with the sizzle that is cloud. In between there were disasters — 9/11, Katrina, Enron — and victories. And ERP deployments, so many ERP deployments.

> “Whining about the cold didn’t help the dinosaurs. Complaining about change won’t help you.

Just about every IT leader still standing in 2011 will agree that the first decade of the new millennium was tough, characterized by doing more with less, cage matches with software companies, and games of contract-chicken with outsourcers.

The good news is that if you survived, Decade 2 will be much more interesting and a bit less toxically underfunded. Leaders who emerge victorious need to excel at the four M’s: mapping the future, mastering the “info-cosm,” mobilizing the masses, and modernizing marketing.

Mapping the future: Everyone knows that the world five years from now is going to be very different from the world we live in today. Change is constant. Change is accelerating. Whining about the cold didn’t help the dinosaurs. Complaining about change won’t help you.

Christopher Columbus was successful because he had a map *and* was scary good at convincing people that the endpoint on that map was worth going to. If you are going to be successful in the next decade, you are going to have to “map up.”

Mastering the “info-cosm.” The future will be awash with information — 35 trillion gigabytes by 2020, if analyst estimates are to be believed. Former HP CEO Mark Hurd delightedly and repeatedly told senior executives that “in the next four years, there will be twice as much data as we have on the planet today.”

PBS talk show host Charlie Rose recently interviewed Intel CEO Paul Otellini and asked, almost as an afterthought, what he thought would “go obsolete next.” Without hesitation, Otellini responded, “Ignorance.” In Decade 2, there is nothing we can’t know. IT leaders are perfectly situated to capitalize on the huge opportunity of converting those gigabytes of data (structured and unstructured) into actionable insights that propel the enterprise.

Mobilizing the masses: Clay Shirky, a professor at New York University, has coined one of the most important phrases for the decade to come: “cognitive surplus.” Shirky contends that the world will be fundamentally changed by the constructive and coordinated reapplication of the leisure-time activities of the now-connected global population. In other words, Shirky wants to repurpose the 200 billion hours Americans spend watching TV.

This is crowdsourcing writ large — IT leaders need to figure out how to enable people outside their organizations to actively help them meet organizational objectives.

Modernizing marketing: Kaiser Permanente has personalized patient health reports to such a degree that doctors and patients can forecast the outcomes of therapies and choose accordingly.

Most high-end automobiles now feature climate controls that enable passengers and drivers to travel at different temperatures. Colleagues at the Stockholm School of Economics tell me that the most important “ism” in the world today is individualism.

The only way to delight the customer of the future is with world-class IT systems that enable us to manage markets of one.

If we map, master, mobilize and modernize, Decade 2 of Millennium 3 is going to be much better than the one we just finished. ◆

Thornton A. May is the author of *The New Know: Innovation Powered by Analytics* and executive director of the IT Leadership Academy at Florida State College at Jacksonville. You can contact him at thorntonamay@aol.com.

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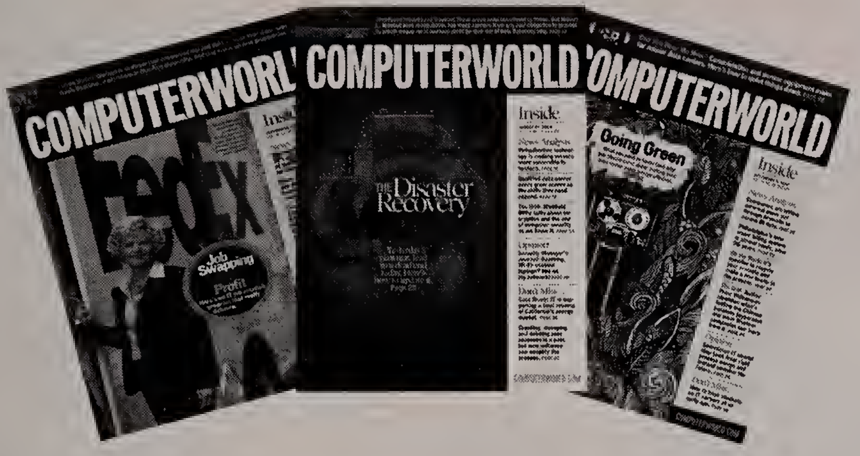

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Perform prjct mgmt, status report & issue tracking. Perform unit, integration, regression & system testing. Assist in Disaster Recovery. BA in Comp Sc. 24 months exp. Must be willing to relocate to unanticipated client sites in USA incldg IA, AZ, SD, CA, MD. Resume with ref #R259N to Robert Gatto Associates @ jobs2@gattoassociates.com

SHARKTANK

TRUE TALES OF IT LIFE AS TOLD TO SHARKY

HAL MAYFORTH

Manual Labor

Ambulance director pilot fish for this small town is also the only person in city hall who knows HTML. "So I was the one who usually edited the city Web site," fish says. "Then my boss had this great idea – Wordpress! All the city directors had a conference call with the guy who sold the city the Web site. Everyone was taking notes except for me, because I knew what he was explaining. I had questions the guy couldn't answer. Everyone stopped taking notes." Result: After the switch-over, fish's cell phone rings steadily with questions from other departments. Then he gets an idea: Write a manual, complete with pictures and instructions. He makes copies, distributes them and figures the problem is solved. Well, no – but the calls are shorter when fish just explains what page to read in the manual. "Finally I stopped answering my phone when they called," says fish. "After that, someone stopped me at work and said, 'I tried to get hold of you but couldn't, so I read the manual. You put a lot of time and effort into that, didn't you?' It took all I had not to strangle him."

Where Bugs Go

This pilot fish is in Canada, doing customer service for a U.S. technology company. "In customer service, we had no access to the source code if we found problems in the software," says fish. "All we could do was write up a report and submit it to the head office for fixing. We didn't like to go through the effort to do this – though we did it anyway – because experience had taught us that bug reports rarely got fixed in a timely manner, if at all. And if they did fix them, usually no one told us. After working in Canada for two years, there was an opening in the head office for which my talents were a perfect fit. I was offered the job and moved to the U.S. After a few months of training, they gave me a stack of bug reports to work on. The one on the top looked oddly familiar. It was a bug report I had submitted years before. I fixed the bug myself in short order – and then called my old office to tell them it was fixed."

It's Gonna Be a Lon-n-n-n-g Job

Contract programmer pilot fish gets a job supporting a regional airline that has just gone bankrupt. "One of the first things they asked me to do was to generate a listing of every vendor they owed money to," fish reports. " 'Certainly,' I said. 'Would you like that in alphabetic or numeric order?' The manager jumped up from his chair, slammed his hand on the desk, turned red in the face and screamed at me: 'Don't talk to me in all that computer mumbo-jumbo crap! Just give me the report!' "

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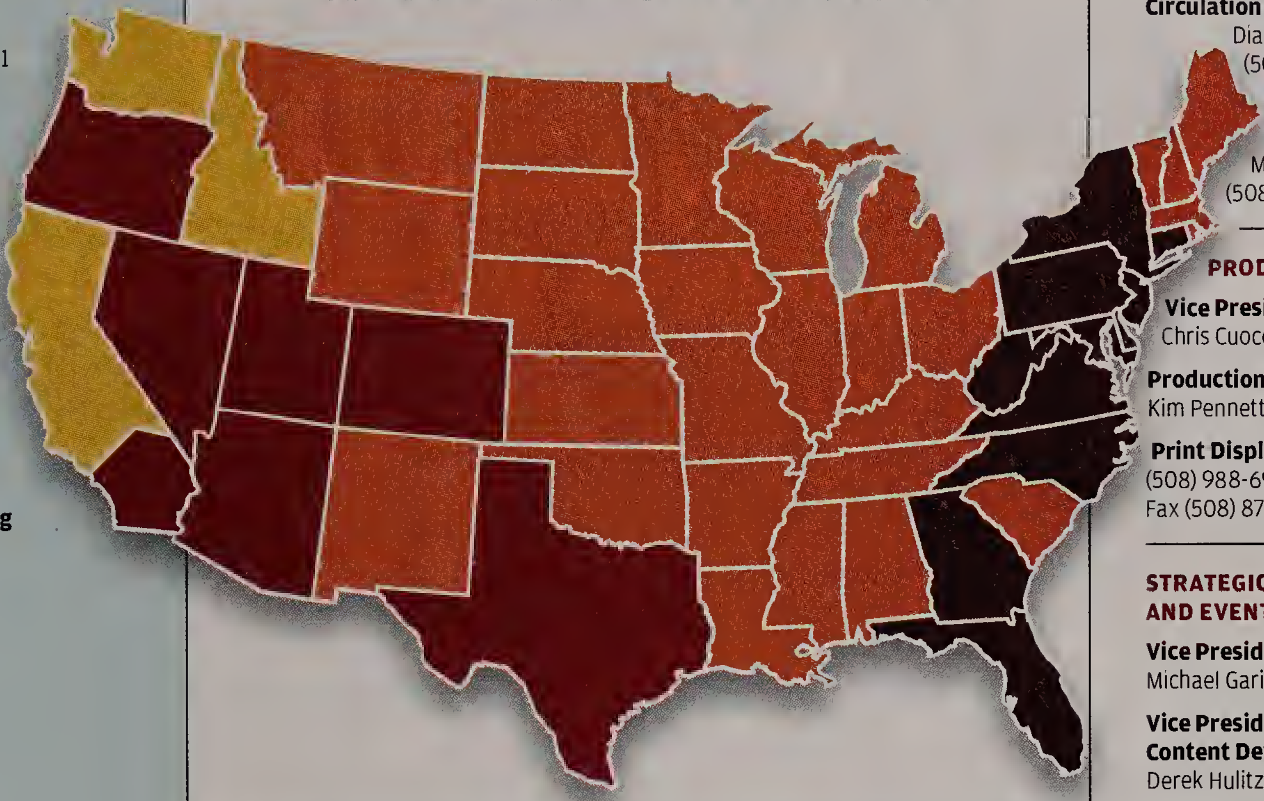

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OPINION

PAUL INGEVALDSON

Stopping the Technology Brain Drain

AS WE LOOK AHEAD TO 2011, it's a good time to think again about the potential shortage of qualified IT people due to excessive outsourcing of IT jobs to India, China and elsewhere. This situation is akin to the brain drain that occurred during World War II, when eminent scientists emigrated from Europe to the U.S.

> In high schools, we still teach the same math and science courses I took in the early '60s.

The two main factors contributing to this developing shortage are a lack of focus on technology careers in the U.S., beginning in high school, and the uncertainties of the domestic job market.

First, let's look at education. Some people suggest that kids today aren't willing to take on the difficult subject matter that's contained in IT courses. Poppycock. Older generations always seem ready to label youngsters as lazy, self-absorbed and unwilling to work hard. Personally, I think every succeeding generation is smarter, more intelligent and more enthusiastic than the one before it. A better explanation is that our high schools have not kept pace with the emerging IT world.

This situation is caused by several factors. In math and science classrooms, we still teach biology, chemistry, physics, algebra, geometry and calculus as the core courses — the same courses I took in the early '60s. True, some schools make IT courses available, but they are electives. The renowned Illinois Mathematics and Science Academy, for example, offers six elective courses in IT-related subjects. Happily, it is considering making one IT semester mandatory. In St. Charles, Ill., the subject of IT courses is being discussed in the district's 21st-century skills project. But few others seem ready to take that step.

One thing behind the reluctance to change may be the testing that students undergo to enter college. Schools feel that they must prepare students to answer questions about the Pythagorean theorem or the atomic weight of sodium, and are confident that questions on efficient database design or Web site development won't show up.

And, of course, it is difficult to stay abreast of the ever-changing environment that is IT. Yesterday it was effective programming techniques, today it is ERP development, and tomorrow it will be cloud computing. The atomic weight of sodium is constant, but when it comes to IT, it's hard to keep courses relevant and textbooks up to date.

As for the domestic job market, I have heard even CIOs question whether they should encourage their children to pursue IT careers. My answer is that they should. All companies will need some type of technology practitioners in the future in order to harness the vast technology changes that will occur in the 21st century, which may rival those of the 20th century.

If you share my concern about the possibility that IT skills will leach out of the U.S., I suggest that you get active with your local high schools. This is where a lot of kids discover what they like to do. Let's push for IT courses to be mandatory in math and science. Let's encourage high schools to hire qualified teachers or seek IT practitioners to fill the void. Perhaps these same practitioners could serve on panels to advise curriculum committees on the subjects that should be taught. We could work with the schools to have guests from the industry speak to the students.

Our kids are aggressive users of technology. It would seem easy to get their attention when we talk about working in the field that creates that technology. Let's keep the brains here and active in our technology future. ◆

Paul M. Ingevaldson retired as CIO of Ace Hardware in 2004 after 40 years in the IT business. You can contact him at ingepi@aol.com or visit his Web site, PaulIngevaldson.com.

[TOUGH QUESTION #5]

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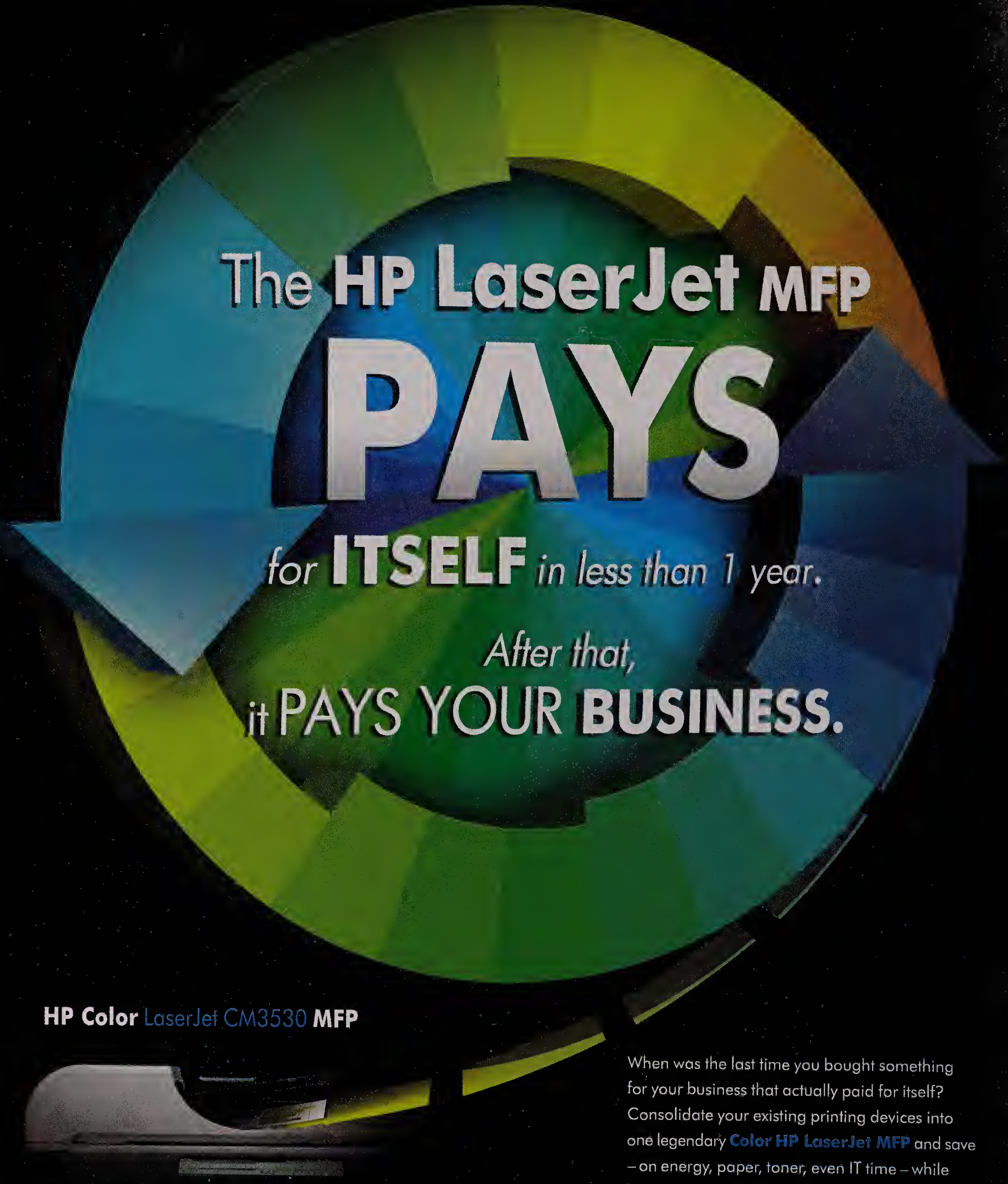

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